LISTING OF CLAIMS

The following listing of claims replaces all previous versions, and listings, of claims in the present application.

1. (Original) A drive circuit for driving a switching element comprising: a high-side switching circuit connected between power supply lines; a low-side switching circuit connected in series with said high-side switching circuit through an output terminal leading to the switching element; and

a voltage detector detecting a voltage appearing at the output terminal, wherein said low-side switching circuit is controlled to be turned off when the voltage detected by said voltage detector is lower than an off-decision voltage which is defined within a voltage range in which the switching element is in an off-state.



- 2. (Original) A drive circuit as set forth in claim 1, wherein said low-side switching circuit includes an output transistor, a predriver driving the output transistor, a comparing circuit comparing the output voltage detected by said voltage detector with the off-decision voltage, and a logic circuit controlling an operation of the predriver base on a result of comparison in the comparing circuit.
- 3. (Original) A drive circuit as set forth in claim 2, wherein the comparing circuit is implemented by a comparator.
- 4. (Original) A drive circuit as set forth in claim 2, wherein the comparing circuit includes a decision transistor having a control terminal into which the output voltage detected by said voltage detector is inputted.
- 5. (Original) A drive circuit as set forth in claim 1, wherein said voltage detector is implemented by a voltage divider made up of resistors.

a voltage detector detecting a voltage appearing at the output terminal; wherein said high-side switching circuit is turned off when the voltage detected by said voltage detector is higher than an on-decision voltage which is defined within a voltage range in which the switching element is in an on-state.



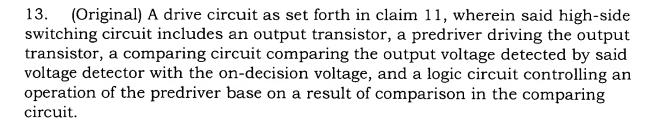
- 7. (Original) A drive circuit as set forth in claim 6, wherein said high-side switching circuit includes an output transistor, a predriver driving the output transistor, a comparing circuit comparing the output voltage detected by said voltage detector with the on-decision voltage, and a logic circuit controlling an operation of the predriver base on a result of comparison in the comparing circuit.
- 8. (Original) A drive circuit as set forth in claim 7, wherein the comparing circuit is implemented by a comparator.
- 9. (Original) A drive circuit as set forth in claim 7, wherein the comparing circuit includes a decision transistor having a control terminal into which the output voltage detected by said voltage detector is inputted.
- 10. (Original) A drive circuit as set forth in claim 6, wherein said voltage detector is implemented by a voltage divider made up of resistors.
- 11. (Currently Amended) A drive circuit for driving a switching element comprising:

a high-side switching circuit connected between power supply lines; a low-side switching circuit connected in series with said high-side switching circuit through an output terminal leading to the switching element; and

a voltage detector detecting a voltage appearing at the output terminal; wherein said low-side switching circuit is turned off when the voltage detected by said voltage detector is lower than an off-decision voltage which is defined within a voltage range in which the switching element is turned off in an off state, and

wherein said high-side switching circuit is turned off when the voltage detected by said voltage detector is higher than an on-decision voltage which is defined within a voltage range in which the switching element is turned on in an on state.

12. (Original) A drive circuit as set forth in claim 11, wherein said low-side switching circuit includes an output transistor, a predriver driving the output transistor, a comparing circuit comparing the output voltage detected by said voltage detector with the off-decision voltage, and a logic circuit controlling an operation of the predriver base on a result of comparison in the comparing circuit.





- 14. (Original) A drive circuit as set forth in claim 13, wherein the comparing circuit includes a decision transistor having a control terminal into which the output voltage detected by said voltage detector is inputted.
- 15. (Original) A drive circuit as set forth in claim 11, wherein said voltage detector is implemented by a voltage divider made up of resistors.
- 16. (New) A drive circuit as set forth in claim 1, wherein said high-side switching circuit is also controlled to be turned off during the off state of the switching element so that no current flows through either said high-side switching circuit or said low-side switching circuit when the voltage detected by said voltage detector is lower than the off-decision voltage.



- 17. (New) A drive circuit as set forth in claim 11, wherein said high-side switching circuit is also controlled to be turned off during the off state of the switching element so that no current flows through either said high-side switching circuit or said low-side switching circuit when the voltage detected by said voltage detector is lower than the off-decision voltage.
- 18. (New) A drive circuit as set forth in claim 1, wherein said low-side switching circuit is turned on for dissipating electric charges from a switching element gate capacitor when the switching element is switched to the off-state.
- 19. (New) A drive circuit as set forth in claim 11, wherein said low-side switching circuit is turned on for dissipating electric charges from a switching element gate capacitor when the switching element is switched to the off-state.
- 20. (New) A drive circuit as set forth in claim 1, wherein said low-side switching circuit and said high-side switching circuit comprise bipolar transistors that are selectively turned on and off by controlling respective base currents thereof.
- 21. (New) A drive circuit as set forth in claim 6, wherein said low-side switching circuit and said high-side switching circuit comprise bipolar transistors that are selectively turned on and off by controlling respective base currents thereof.



- 22. (New) A drive circuit as set forth in claim 11, wherein said low-side switching circuit and said high-side switching circuit comprise bipolar transistors that are selectively turned on and off by controlling respective base currents thereof.
- 23. (New) A drive circuit as set forth in claim 6, wherein said low-side switching circuit is also controlled to be turned off during the on state of the switching element so that no current flows through either said high-side switching circuit or said low-side switching circuit when the voltage detected by said voltage detector is higher than the on decision voltage.
- 24. (New) A drive circuit as set forth in claim 11, wherein said low-side switching circuit is also controlled to be turned off during the on state of the switching element so that no current flows through either said high-side switching circuit or said low-side switching circuit when the voltage detected by said voltage detector is higher than the on decision voltage.
- 25. (New) A drive circuit as set forth in claim 6, wherein said high-side switching circuit is turned on for charging a switching element gate capacitor when the switching element is switched to the on state.
- 26. (New) A drive circuit as set forth in claim 11, wherein said high-side switching circuit is turned on for charging a switching element gate capacitor when the switching element is switched to the on state.